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## Studies on the Rocky Mountain flora—XV

PER AXEL RYDBERG

In preparing my Flora of Colorado, to be issued as a Bulletin from the Agricultural College at Fort Collins, Colorado, and now in press, I have found it necessary to change the nomenclature of a number of species. As the scope of the Flora comprises only keys to the families, genera and species, and an enumeration of localities where specimens have been collected, it has been impossible to include therein any fuller synonymy with citations, or any discussions. It has, therefore, seemed advisable to make the publication of these changes and notes elsewhere.

### ***Caryopitys monophylla* (Torr. & Frém.) Rydb.**

*Pinus monophyllus* Torr. & Frém. Rep. 319. 1845.

Dr. Small in his Flora of the Southeastern United States has followed the more modern views in dividing genera, which consist of very natural sections or subgenera, into as many separate genera. The genus *Pinus* as usually treated contains at least four distinct subgenera, better defined and more easily distinguished from each other, than for instance *Picea* and *Tsuga*. Three of these had already generic names, viz.: *Pinus* L. (proper), *Apinus* Necker and *Strobis* Opiz. Dr. Small had to give the fourth group, which is wholly American, a new name, *Caryopitys*. In the Rocky Mountain region the genus is represented by the type species *C. edulis* (Engelm.) Small, and by the species given above. One of the four genera is not represented within the area covered by Dr. Small's work, viz.:

APINUS Necker, Elem. Bot. 3: 269. 1790

Most of Necker's genera are hard to determine, but in this case Necker not only gives the characters by which he distinguishes the genus from *Pinus* proper, but also cites two species, viz.: *cembra* and *pineae*. In the Kew Index, the genus is given, but no species are mentioned. The way in which Necker makes

his statement, there is all the reason to claim that the two species are there published as *Apinus*. Necker states that *Larix* contains 3 species, *viz.*: *decidua*, *cedrus* and *strobis*; *Pinus* 2, *sylvestris* and *taeda*: *Apinus* also 2, *viz.*: *cembra* and *pinea*, but *Abies* 5, etc. If Necker had meant that these were the Linnaean species of *Pinus* to be distributed among the different genera, he would have stated it differently. There was no *Pinus decidua* L., but a *Pinus Larix* L. and a *Larix decidua* Miller. *Apinus* is most related to *Strobis*, but differs in the thick cone-scales, the erect or horizontal instead of pendent cone and a very hard-shelled seed with only a vestige of a wing. In the Rocky Mountains, it is represented by the two following species :

***Apinus flexilis* (James) Rydb.**

*Pinus flexilis* James, in Long's Exped. 2 : 34. 1823.

***Apinus albicaulis* (Engelm.) Rydb.**

*Pinus albicaulis* Engelm. Trans. Acad. St. Louis 2 : 209. 1863.

***Sabina utahensis* (Engelm.) Rydb.**

*Juniperus californica utahensis* Engelm. Trans. Acad. St. Louis 3 : 588. 1877.

Haller's genus *Sabina* is also one just as consistently taken up by Dr. Small. I shall here give only the Rocky Mountain species to be referred to this genus.

***Sabina monosperma* (Engelm.) Rydb.**

*Juniperus occidentalis monosperma* Engelm. Trans. Acad. St. Louis 3 : 590. 1877.

***Sabina Knightii* (A. Nels.) Rydb.**

*Juniperus Knightii* A. Nels. Bot. Gaz. 25 : 198. 1898.

***Sabina scopulorum* (Sargent) Rydb.**

*Juniperus scopulorum* Sargent, Garden and Forest 10 : 420. 1897.

***Sparganium multipedunculatum* (Morong) Rydb.**

*Sparganium simplex multipedunculata* Morong, Bull. Torrey Club 15 : 79. 1888.

This is quite distinct from *S. simplex* L. To the characters given by the late Dr. Morong may be added the broad scarious margins of the leaf-sheaths. This character it has in common with *S. americanum* Nutt. of the eastern United States and *S. subvaginatum* Meinsh. of Europe. In fact, Meinshausen included C. C. Parry's plant from Colorado in the latter. It is, however, very doubtful if it belong there, for the original description of *S. subvaginatum* does not fit our plant very well. *S. multipedunculatum* ranges from the Mackenzie River and Washington to Colorado.

**Potamogeton Richardsonii** (Bennett) Rydb.

*Potamogeton perfoliatus lanceolatus* Robbins, in A. Gray, Man. ed.

5. 488. 1867. Not *P. perfoliatus lanceolatus* Blytt. 1861.

*Potamogeton perfoliatus Richardsonii* Bennett, Jour. Bot. 27: 25. 1889.

Our common North American plant does not seem to intergrade at all with the true *P. perfoliatus* L.

**Stipa Porteri** Rydb.

*Stipa mongolica* (Thurber, in A. Gray, Proc. Acad. Phila. 1863: 79, hyponym. 1863.) Port. & Coult. Syn. Fl. Colo. 145. 1874. Not *S. mongolica* Turcz.

In the enumeration of Hall and Harbour's plants, Thurber determined this plant as *S. mongolica* Turcz., which is evidently erroneous. He gives the name and a short discussion but no description. A good description was afterwards given by Porter and Coulter in the Synopsis of the Flora of Colorado.

**Muhlenbergia cuspidata** (Torr.) Rydb.

*Vilfa cuspidata* Torr.; Hook. Fl. Bor. Am. 2: 238. 1839.

*Sporobolus cuspidata* Wood, Bot. & Fl. 385. 1870.

The group of grasses, which Torrey, Trinius and Thurber regarded as a good generic type and for which they adopted the name *Vilfa*, is altogether out of place in the genus *Sporobolus*, where its species have been placed by authors. They are no "Drop-seed" grasses at all, the grain remaining enclosed in the firm flowering glume. They should be taken out of *Sporobolus*, but if they should constitute a genus by themselves is question-

able. The generic name *Vilfa* is not available, for the type of *Vilfa* Adans. is apparently a species of *Agrostis*. As there is no character, whatever, to separate these plants from *Muhlenbergia* as now limited, the only rational way to treat them at present is to transfer them all to *Muhlenbergia*. At any rate, they are congeneric with *M. Wrightii* Vasey, slender specimens of which are very hard to distinguish from *M. cuspidata* here proposed. The other Rocky Mountain species are :

***Muhlenbergia Richardsonis* (Trin.) Rydb.**

*Vilfa Richardsonis* Trin. Mem. Acad. St. Petersburg. VI. Nat. 5<sup>2</sup>: 103. 1840.

? *Agrostis brevifolia* Nutt. Gen. 1: 44. 1818.

The specific name *brevifolia* may have to be taken up for this species, but it is doubtful if *Agrostis brevifolia* is a synonym of this. Professor Scribner claims that it belongs to the preceding species. What *Vilfa Richardsonis* Trin. is, is not doubtful, and that specific name is therefore preferable.

***Muhlenbergia simplex* (Scribn.) Rydb.**

*Sporobolus simplex* Scribn. Bull. U. S. Div. Agrost. 11: 48. 1898.

***Muhlenbergia filiformis* (Thurber) Rydb.**

*Vilfa depauperata filiformis* Thurb.; S. Wats. Bot. King's Expl. 376. 1871.

*Vilfa gracillima* Thurb. Bot. Calif. 2: 268. 1880. Not *Muhlenbergia gracillima* Torr. 1856.

*Sporobolus filiformis* Rydb. Contr. U. S. Nat. Herb. 3: 189. 1895.

***Muhlenbergia aristulata* Rydb.**

*Sporobolus aristatus* Rydb. Bull. Torrey Club 28: 266. 1901.  
Not *Muhlenbergia aristata* Pers. 1805.

***Muhlenbergia Wolfii* (Vasey) Rydb.**

*Vilfa minima* Vasey, Bot. Wheeler Surv. 282. 1878. Not *V. minima* Trin. 1855.

*Sporobolus Wolfii* Vasey, Bull. Torrey Club 10: 52. 1883.

**Muhlenbergia Thurberi** Rydb.

*Sporobolus filiculmis* Vasey ; Beal, Grasses N. Am. 2 : 288. 1896.

Not *S. filiculmis* Dewey. 1894.

*Vilfa filiculmis* Thurber ; Beal, *l. c.*, as a synonym.

Both *Sporobolus filiculmis* Vasey and *Vilfa filiculmis* Thurber appeared in 1885 in Vasey's Catalogue of the Grasses of United States, on page 44 ; but both are there nomina nuda and the first place where a description is published is, as far as I can find, in Beal's Grasses of North America. In the meantime Dewey had published another *Sporobolus filiculmis* which invalidates that specific name.

**Sporobolus flexuosus** (Thurber) Rydb.

*Sporobolus cryptandrus flexuosus* Thurber ; Vasey, Bot. Wheeler Surv. 282. 1878.

This is evidently specifically distinct from *S. cryptandrus*.

**Deschampsia alpicola** Rydb. sp. nov.

*Deschampsia caespitosa alpina* Vasey ; Beal, Grasses N. Am. 2 : 368 ; at least in part. 1896. Not *D. alpina* R. & S. 1817.

Densely caespitose, tufted perennial ; sterile shoots numerous ; sheaths 2-3 cm. long, glabrous, striate ; ligules linear-lanceolate, acuminate, about 5 mm. long ; blades 1-2 dm. long, 1-2 mm. wide, stiff, often more or less involute ; culm-leaves with sheaths 1-1.5 dm. long and blades 1-4 cm. long ; culms 3-5 dm. high ; panicle short, open, 8-15 cm. long, its branches in 2's to 5's, 3-6 cm. long, soon spreading ; spikelets about 5 mm. long ; empty glumes about 4 mm. long, lanceolate, acute ; flowering glume nearly as long, hirsute at the base ; awn attached one third or one-fourth from the base, one and a half to two times as long as the glume, bent and twisted.

This differs from *D. caespitosa* in the large flowers and the long awns. It has been mistaken for *D. bottnica*, but that species has long narrow inflorescence and comparatively longer empty glumes. *D. alpicola* is rather common in alpine regions of Colorado. A similar if not identical form is also found in Alaska. As the type may be designated :

COLORADO : Mountain meadows, Pike's Peak, Sept. 4, 1901, at an altitude of 3600 meters, *L. M. Underwood XX*.

**Graphephorum Shearii** (Scribn.) Rydb.

*Trisetum argenteum* Scribn. Bull. U. S. Div. Agrost. **11**: 49.  
1898. Not *T. argenteum* R. & S. 1817.

*Trisetum Shearii* Scribn. Circ. U. S. Div. Agrost. **30**: 8. 1901.

Professor Scribner has merged *Graphephorum* into *Trisetum*. I think, though, that they should be retained as two distinct genera, even if the former should be transferred to the tribe *Aveneae*.

**Distichlis stricta** (Torr.) Rydb.

*Uniola stricta* Torr. Ann. Lyc. N. Y. **1**: 155. 1824.

*Distichlis maritima stricta* Thurber, Bot. Calif. **2**: 306. 1880.

*Distichlis spicata stricta* Scribn. Mem. Torrey Club **5**: 51. 1894.

**Eatonia robusta** (Vasey) Rydb.

*Eatonia obtusata robusta* Vasey; Beal, Grasses N. Am. **2**: 493.  
1896.

To the characters given in the original description should be added: intermediate nerves of the second glume very strong, and leaf-blades firm, much broader than the sheaths, and therefore forming distinct auricles at the base. The nerves mentioned are in this species almost as prominent as the lateral nerves. In *E. obtusata* they are faint, while the lateral ones are very prominent.

**Eatonia intermedia** Rydb. sp. nov.

Culm 6–8 dm. high, 1.5–2.5 mm. thick, striate, shining; sheaths 5–15 cm. long, striate, minutely scabrous; ligules about 2 mm. long, truncate, erose and often cleft; blades 8–15 cm. long, 3–5 mm. wide, usually flat, broader than the sheaths and therefore forming distinct auricles at the base; inflorescence rather narrow and dense, 8–15 cm. long, 1–3 cm. wide; spikelet usually 2-flowered; first empty glume about 2 mm. long, subulate, scabrous on the back; second empty glume oblanceolate in side view, rather firm, slightly scarious on the margin, with prominent scabrous nerves, obtusish, about as wide as the flowering glumes, a little over 2 mm. long and 0.5 mm. wide; flowering glume oblong-lanceolate in side-view, rather firm, with faint nerves and minutely scabrous; palea narrowly linear, scarious.

This species has been named both *E. obtusata* and *E. pennsylvanica*, and is intermediate between the two. From the former it

differs in the narrower second glume, which is scarcely broader than the flowering glume and neither truncate nor cucullate at the apex; from *E. pennsylvanica* it differs in the denser inflorescence and the firmer and less acute second glume, which has the texture of that of *E. obtusata*. In *E. pennsylvanica* the second empty glume is thin, very acute and with a broad scarious margin.

A few of the specimens to be referred to this are given here:

MONTANA: East Gallatin Swamps, July 24, 1896, *P. A. Rydberg* 3174 (type) and 3173; Columbia Falls, 1893, *R. S. Williams*; Blue Cloud, near Helena, 1887, *F. D. Kelsey*.

COLORADO: Gunnison, 1901, *C. F. Baker* 524; Pagosa Springs, 1899, *Baker* 169; Durango, 1898, *Baker, Earle & Tracy* 950 (the last determined as *Agrostis exarata*).

***Poa callichroa* Rydb. sp. nov.**

Perennial with a horizontal rootstock, but more or less matted; culm about 3 dm. high, mostly leafy at the base; sheaths strongly striate, 2–10 cm. long; ligules lanceolate or ovate, acute, about 3 mm. long; blades of the lower leaves 6–10 cm. long, 3–4 mm. wide, firm, dark-green, strongly veined; blades of the upper leaves about 3 cm. long, erect; panicle 6–9 cm. long, open; branches mostly in 3's or 4's below, the lowermost 2–3 cm. long; spikelets 6–8 mm. long, 5–7-flowered; empty glumes lanceolate in side-view, about 5 mm. long, acuminate, purple with greenish or brownish margins; flowering glumes 4–5 mm. long, lanceolate, acuminate, with strong nerves, green below, then purple, then brown, and white and scarious above; nerves and internerves more or less villous; cobweb at the base present but scant.

This species is a relative of *P. arctica* and *P. cenisia*, but differs from both in the taller habit, broader leaves and larger, 5–7-flowered (instead of 3–4-flowered) spikelets.

COLORADO: Dead Lake, near Pike's Peak, August 14, 1901, *F. E. & E. S. Clements* 457.

***Poa pudica* Rydb. sp. nov.**

Perennial with a short rootstock and often tufted; culm 2–3 dm. high; lower leaves with short sheaths, which are often rather loose; ligules truncate, about 2 mm. long; blades 4–5 cm. long, usually conduplicate, strongly nerved; sheaths of the stem-leaves 5–7 cm. long; blades 2–4 cm. long, erect; panicle 4–8 cm. long,



open; branches usually in pairs, in age reflexed; the lowest 4–5 cm. long, bearing the spikelets near the ends; spikelets 4–5 mm. long, mostly 3-flowered; empty glumes lanceolate in side view, strongly veined, usually purple, acuminate; flowering glumes lanceolate, sharp-acuminate, greenish below, then purplish and scarious at the apex; cobweb present but scant; internerves glabrous and nerves pubescent.

The type specimens were determined by Professor Scribner as *P. arctica*, but it differs from that species in the smaller more sharply acuminate flowering glumes and their glabrous internerves. These characters would place it closer to *P. reflexa*. The latter species is, however, taller, and the intermediate nerves of the flowering glumes are glabrous.

COLORADO: Stephen's Mine, below Gray's Peak, Aug. 23, 1895, *P. A. Rydberg 2443* (type); near Pagosa Peak, Aug. 1899, *C. F. Baker 209* (determined as *P. reflexa*); high mountains about Empire, 1892, *H. N. Patterson 272*.

***Poa macroclada* Rydb. sp. nov.**

Perennial with a horizontal rootstock; culm 6–8 dm. high; sheaths 5–15 cm. long, rather loose, strongly striate, slightly scabrous; ligules ovate, acute, about 2 mm. long; leaf-blades 7–10 cm. long, 2 mm. or less wide, flat, glabrous, firm and dark-green; panicle 2–3 dm. long, open; branches in 3's–5's, in fruit reflexed or spreading, the lower often 1 dm. long, with the spikelets near the ends; spikelets often about 5 mm. long, 2- or 3-flowered; empty glumes lanceolate, very acute, more or less purplish; flowering glume lanceolate, acute or acuminate, glabrous, slightly purple-tinged; intermediate veins faint and cobweb scant.

This species is related to *P. aperta*, but differs in the long slender branches of the panicle and the glabrous flowering glumes.

COLORADO: Roger's, Gunnison Watershed, August 14, 1901, *C. F. Baker 802*.

***Poa interior* Rydb. sp. nov.**

*Poa nemoralis* Scribn. Bull. U. S. Div. Agrost. **17**: 250. 1899.

Not *P. nemoralis* L. 1753.

? *Poa caesia* Coult. Man. Rocky Mt. Reg. 421. 1885. Not *P. caesia* Smith. 1800.

The grass common throughout the Rocky Mountain region and extending in the north from Alaska to the Dakotas and gen-

erally known as *P. nemoralis* is quite different from the European plant. The latter is found in America as sparingly introduced in the Eastern States. The European plant is taller, with soft, flaccid leaves, ovate or lanceolate acute ligules, larger spikelets and narrowly lanceolate empty glumes which are tapering gradually at the apex and much narrower than the flowering glumes. The American plant is usually lower and stiffer, has rather firm leaves, truncate ligules, smaller spikelets, broader empty glumes, which are rather abruptly acuminate and at least the second almost as broad as the flowering glumes. The name *P. nemoralis* was used for the American plant by Hooker and Arnott,\* but appears there without a description. It was adopted by several authors on western botany; but, as far as I know, never described under that name, until 1899 by Professor Scribner. His description and plate illustrates the American rather than the European plant. As the type may be designated:

WYOMING: Headwaters of Clear Creek and Crazy Woman River, 1900, *Frank Tweedy* 3706.

***Poa phoenicea* Rydb. sp. nov.**

Perennial with a horizontal rootstock and extravaginal innovations; culm 5-6 dm. high, leafy; sheaths loose, 5-15 cm. long, striate; ligules triangular-lanceolate or ovate, acute, about 5 mm. long; blades 1-2 dm. long, about 2 mm. wide, rather firm, strongly veined; panicle 6-10 cm. long, open, its branches mostly in pairs, the lower 5-6 cm. long; spikelets 4-5-flowered, 6-7 mm. long; empty glumes lanceolate, acuminate, purple or green below and purple above, glabrous and shining; flowering glumes lanceolate, green at the base, purple in the middle and brownish-scarious at the top; both nerves and internerves villous; cobweb none; intermediate nerves very faint.

This species resembles somewhat *P. pseudo-pratensis*, *P. epilis* and *P. purpurascens* Vasey (see below). From the first it differs by the more acuminate glumes, the faint intermediate nerves of the flowering glumes and the longer, narrower leaves; from the other two by the open inflorescence, the villous, not scabrous flowering glumes and the creeping rootstock.

COLORADO: Pike's Peak Valley, Aug. 21, 1901, *F. E. & E. S. Clements* 466.

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\* Bot. Beech. Voy. 132. 1832.

***Poa subpurpurea* Rydb. nom. nov.**

*Poa purpurascens* Vasey, Bot. Gaz. 6: 297. 1881. Not *P. purpurascens* Sprengel. 1819.

***Poa tricholepis* Rydb. sp. nov.**

Perennial with a creeping rootstock and extravaginal innovations; sheaths of the basal leaves short, 2–4 cm. long, strongly striate, rather loose, minutely retrorse-striate; blades 5–10 cm. long, a little over 1 mm. wide, scabrous; sheaths of culm-leaves 7–12 cm. long; blades 2–6 cm. long, sometimes nearly 2 mm. wide; ligules lanceolate, acuminate, about 4 mm. long; culm slender, 3–5 dm. high; panicle 6–8 cm. long, open, its branches in pairs, 2–3 cm. long; spikelets 3–4-flowered, 5–8 mm. long; empty glumes about 4 mm. long, lanceolate in side view, acute, green and purple towards the apex; flowering glumes about 4 mm. long, villous below, strigose above, green, bordered with purple and a scarious border, obtuse.

This is related to *P. Wheeleri* and *P. Vaseyana*, but is easily distinguished from both by the obtuse flowering glume, which is villous below. In the two species mentioned the flowering glume is very acute and strigulose or scabrous throughout, or in *P. Vaseyana* hairy on the nerves only.

COLORADO: Near Pagosa Peak, Aug. 1899, *C. F. Baker* 210.

***Poa nematophylla* Rydb. sp. nov.**

A caespitose bunch-grass; basal leaf-blades short, striate, minutely retrosely strigulose; stipules lanceolate, acuminate, about 3 mm. long; blades 1–1.5 dm. long, filiform, strongly involute, less than 0.5 mm. wide, scabrous-strigulose; culm-leaves few, near the base; sheaths 4–6 cm. long; blades 3–5 cm. long; culm about 3 dm. high, filiform; inflorescence narrow, raceme-like, 2–5 cm. long; branches 2–10 mm. long, bearing often only a single spikelet; spikelets 7–9 mm. long, about 4-flowered; empty glumes about 4 mm. long, lanceolate, glabrous and shining; flowering glumes about 6 mm. long, light-green, with a silvery scarious margin, very acute, strigose below, scabrous-strigulose above.

Related to *Poa idahoensis*, but distinguished by the narrow inflorescence and few racemosely disposed spikelets.

COLORADO: Meeker, Rio Blanco County, June 8, 1902, *G. E. Osterhout* 2601.

***Poa confusa* Rydb. sp. nov.**

A tufted bunch-grass with intravaginal innovations; sheaths of the basal leaves short, striate, glabrous; blades 1–2 dm. long, 2–3 mm. wide, flat or involute, puberulent; culm-leaves several; sheaths 1–1.5 dm. long; blades about 1 dm. long; ligules broadly ovate or rounded, obtuse or acutish, about 2 mm. long; culm 6–9 dm. high; panicle narrow, 1–1.5 dm. long, dense; branches short, strongly ascending; spikelets 7–8 mm. long, usually 4-flowered; empty glumes lanceolate in side-view, shining, minutely strigulose above; flowering glumes narrow, about 3.5 mm. long, obtuse or rounded at the apex, rounded on the back below, strigulose, yellowish-green with brownish scarious margin.

This species has been confused with *P. laevigata*, *P. lucida* and *P. nevadensis*. It differs from the first two by the short and broad ligules (in both the ligules are lanceolate and acuminate), and from the last by the empty glumes and in being scarcely scabrous. In *P. nevadensis* the empty glumes are strongly nerved, elongated-lanceolate, almost equaling the oblong, very scabrous flowering glumes; in *P. confusa* they are faintly nerved, broadly lanceolate, shorter than the flowering glumes. *P. confusa* grows in open "parks" and on hills from Nebraska and Montana to Colorado. As the type may be assigned:

WYOMING: Medicine Bow Mountains, Albany County, July 28, 1900, *Aven Nelson* 7787.

***Poa truncata* Rydb. sp. nov.**

A species related to the preceding but stiffer; basal leaves withering early; sheaths of culm-leaves 10–15 cm. long, with conspicuous hard auricles at the mouth; ligules very short, about 1 mm. long, truncate; blades 1–2 dm. long, 2–3.5 mm. wide, scabrous on the back; culm about 9 dm. high, stiff; panicle about 1.5 dm. long, narrow, with almost erect scabrous branches; spikelets 3–5-flowered, 7–9 mm. long; empty glumes 5–6 mm. long, tinged with purple, scabrous on the nerves; flowering glumes narrow, about 5 mm. long, straw-colored or tinged with purple, strigulose throughout and slightly scabrous on the veins.

The short truncate ligules separate this from the preceding and all other related species.

COLORADO: Dillon, Summit County, August 26, 1896, *F. E. Clements* 373.

***Festuca Earlei* Rydb. sp. nov.**

Perennial with rootstocks and extravaginal innovations ; basal leaves with short ligules ; blades filiform, 5–10 cm. long, strongly involute, 0.5 mm. wide or less ; sheaths of the culm-leaves 3–5 cm. long, striate, smooth ; ligules very short, truncate ; blades 3–5 cm. long, 1 mm. wide or less ; culm about 3 dm. high, very slender ; panicle narrow and spike-like, 3–5 cm. long ; branches short and erect, smooth ; spikelets 2–3-flowered, about 5 mm. long ; first empty glume about 2 mm. long, narrowly lanceolate ; the second about 3 mm. long, ovate-lanceolate, 3-nerved ; flowering glumes narrowly lanceolate, about 4 mm. long, smooth, usually awned ; awn 1 mm. or less long.

This species is related to *F. rubra*, but differs in the smaller few-flowered spikelets, the smaller flowering glumes, and the fine, soft leaves.

COLORADO : La Plata Cañon, July 11, 1898, *Baker, Earle & Tracy* 920.

***Festuca ingrata* (Hack.) Rydb.**

*Festuca ovina ingrata* Hack. ; Beal, Grasses N. Am. 2 : 598. 1896.

This is the common plant of the Rocky Mountain region, which has been known under the name *F. ovina*. It is quite different from the European *F. ovina* L. The latter is found in America only in the northeastern part of the continent.

***Festuca minutiflora* Rydb. sp. nov.**

Tufted perennial with intravaginal innovations ; leaves mostly basal ; sheaths smooth, 1 cm. or so long ; ligules 0.75 mm. long, obtuse or rounded at the apex ; blades 5–10 cm. long, narrow and flaccid, about 0.5 mm. wide ; sheaths of the culm-leaves 2–4 cm. long ; blades 1–3 cm. long ; culm very slender, 1–1.5 (seldom 3) dm. high ; panicle very narrow, lax, 2–4 cm. long, with very short erect branches ; spikelets, excluding the awns, about 5 mm. long, 2–3-flowered ; first empty glume narrowly lanceolate, 2–2.5 mm. long, acute ; the second 2.5–3 mm. long, ovate-lanceolate, short-acuminate or awn-pointed ; flowering glume oblong-lanceolate, about 2 mm. long, purple-tinged above, abruptly contracted into a short awn, 1.5 mm. or less.

This is closely related to *F. brachyphylla*, but differs in the smaller spikelets, the more abruptly acuminate flowering glumes, the shorter awns, the laxer panicle and the soft filiform leaves. It

grows in alpine situations of Colorado, at an altitude of 3000–4000 meters, and is found apparently also in California.

COLORADO : Cameron Pass, July 13, 1869, *C. F. Baker* (type) ; near Pagosa Peak, 1899, *Baker 176* ; "Colorado," *E. Hall 12* ; Mt. Lincoln, *John Wolf* ; Tennessee Pass, 1893, *De Alton Saunders* ; Mt. Ouray, 1896, *F. E. Clements 210 1/2* ; near Manitou, 1896, *Clements 46*.

CALIFORNIA : *Bolander 5066*.

***Elymus strigosus*** Rydb. sp. nov.

A caespitose perennial ; sheaths 3–8 cm. long, striate, glabrous or minutely puberulent, with distinct auricles at the mouth ; ligules very short, truncate, 1 mm. long or less ; blades 1–2 dm. long, about 3 mm. wide, flat or involute, scabrous ; culm 5–7 dm. high ; spike 1–1.5 dm. long ; spikelets 1 or 2 at each node ; empty glumes linear-subulate, 7–9 mm. long, very scabrous ; flowering glumes lanceolate, scabrous-strigose, awn-pointed or short-awned, without the awn about 1 cm. long.

This is closely related to *E. ambiguus*, but distinguished by the scabrous strigose flowering glumes, the more scabrous empty glumes and the narrower leaves.

COLORADO : Near Boulder, at an altitude of 2300 meters, July 31, 1886, *C. W. Letterman 553* (type, labeled *Agropyrum dasy-stachyum*).

WYOMING : Naked shale slopes, Point of Rocks, Sweetwater County, 1900, *Aven Nelson 7151* (labeled *Elymus salinus*).

***Elymus villiflorus*** Rydb. sp. nov.

A caespitose perennial ; sheaths 4–10 cm. long, striate, glabrous ; blades 1–2 dm. long, about 2 mm. wide, strongly involute, scabrous above ; culm 4–6 dm. high, finely retrorse-pubescent above ; spike 1–1.5 dm. long ; spikelets 1 or 2 at each node ; empty glumes subulate, 7–9 mm. long ; flowering glumes lanceolate, 5-nerved, villous-hirsute, without the short awn about 1 cm. long.

Closely related to the preceding and *E. ambiguus*, this is characterized by its long-haired and more strongly nerved flowering glume. It grows on plains and foothills at an altitude of 1500–1800 meters.

COLORADO: Near Boulder, July, 1902, *F. Tweedy* 4818 (type).

ALBERTA: Banff, July 21, 1900, *H. B. Lawson*.

***Juncoides intermedium* (Thuill.) Rydb.**

*Juncus intermedius* Thuill. Fl. Env. Paris. ed. 2. 178. 1799.

*Juncus multiflorus* Ehrh.; Hoffm. Fl. Deutschl. ed. 2. 1: 169. 1800. Not *J. multiflorus* Retz. 1795.

This is the plant that has been known in America under the name *Luzula campestris* or *Juncoides campestre*, but this North European species is found, if at all on this continent, only in the extreme northeastern portion. It is distinguished from *J. intermedium* by its fewer, larger and nodding spikelets. The name *Juncus multiflorus* dates back as far as 1791, when Ehrhart issued his set of grasses, sedges, etc., but as far as can be ascertained, it was never published for this plant before 1800, in the revised edition of Hoffmann's Flora.

***Nemexia lasioneuron* (Hook.) Rydb.**

*Smilax lasioneuron* Hook. Fl. Bor. Am. 2: 173. 1838.

*Nemexia herbacca melica* Aven Nelson, Proc. Biol. Soc. Wash.

17: 175. 1904.

***Ibidium porrifolium* (Lindl.) Rydb.**

*Spiranthes porrifolia* Lindl. Gen. & Sp. Orch. 467. 1840.

Mr. House\* has shown that *Ibidium* Salisb. is the name that properly should be used for *Spiranthes* Richard and *Gyrostachys* (Pers.) Kuntze; *Ophrys* L. for *Listera* R. Br. and *Cytharea* Salisb. for *Calypto* Salisb. The Rocky Mountain species of these genera, which have not already been transferred, are given here.

***Ophrys borealis* (Morong) Rydb.**

*Listera borealis* Morong, Bull. Torrey Club 20: 31. 1893.

***Ophrys nephrophylla* Rydb.**

*Listera nephrophylla* Rydb. Mem. N. Y. Bot. Gard. 1: 108. 1900.

***Ophrys caurina* (Piper) Rydb.**

*Listera caurina* Piper, Erythea 6: 32. 1898.

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\*Bull. Torrey Club 32: 378-382. 1905.